Chapter Six
SYSTEM AIRPORTS ROLES AND FACILITY AND SERVICE OBJECTIVES

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Within any transportation system, airports within that system contribute at different and varying levels. While each airport within a system contributes in some way, all serve varying levels of demand, and thus play different roles. While some airports in a system are essential to meeting transportation and economic needs, other airports play a supporting role.

Within the RASP System, with the exception of Davis-Monthan and Tucson International, all other airports in the Regional System are general aviation airports. Even in its role as the Region's only commercial service airport, Tucson International also plays a significant role in meeting the Region's general aviation needs.

For the RASP, it is important to determine how each of the airports in the System are contributing. Determining how airports in the System are currently functioning is an important step in determining how certain airports may need to be upgraded in the future to fill shortfalls or voids in the System. These voids or deficiencies will be subsequently identified in the System adequacy analysis.

Factors Influencing Airport Roles

How each airport contributes, or what role it plays, within any given system is dependent on a variety of factors. Factors that determine the role each airport plays are summarized below:

- Accessibility – Airports that are easily accessible often tend to be more highly utilized. As a result of their greater degree of accessibility, some airports in the System may capture a greater portion of the Region's aviation demand and, as a result, play a more elevated role in the System.

- Population and Employment/Businesses Served – Airports within a system that are in proximity to greater concentrations of population and employment often play a more significant role within

that airport system. Demand for both aviation and aviation-related services is often correlated with one or both of these socioeconomic/demographic indicators.

- Surrounding Development – Airports are often magnets for commercial and industrial development that is aviation-related or aviation-reliant. Airports whose surrounding land use falls into one of these categories typically play a more significant role in the system because there is a higher degree of business dependence on these airports.

- Ownership – Airport ownership also plays a role in determining an airport's contribution to, or role in, a particular airport system. Airports that are publicly, as opposed to privately, owned typically play a greater role in any airport system. Private ownership can limit use of, or accessibility to, airport facilities. In addition, since privately owned airports most often are not eligible for Federal and/or State grants to support their development, privately owned airports often do not have facilities comparable to their public counterparts. Since privately owned airports are typically not eligible for Federal development grants, they are not required to meet the same standards for safety with which publicly funded airports are required to comply. When combined, these factors tend to minimize or to reduce the role that privately owned airports play. It is important to note, however, that in some airport systems the lack of publicly owned facilities increases the need to rely on privately owned airports, making the contribution of these privately owned airports essential in those particular airport systems.

- Facilities – Airports in systems that have more advanced levels of facility development in place often have a heightened role of importance within that system. This is particularly true for runway length and the type of approach that is available to the airport. Airports with longer runways and more precise approach capabilities, precision or non-precision, tend to play more essential roles within any airport system.

- Services – Services, much like facilities, provided at system airports are keys to attracting both locally based and visiting (transient) aviation demand. Services provided at an airport often influence the role that airport plays within the same aviation system. Services that bear upon an airport's role within a particular system include fuel, maintenance/repair, flight training, and other aircraft services such as rental and charter.

Considering each of these factors, airports included in the PAG RASP were reviewed and assigned to one of two categories or levels of contribution. Airports being studied in the RASP were designated as either a Level I airport or a Level II airport. These assignments are based on the role that each System airport now plays in meeting the Region's general aviation needs. Since Davis-Monthan AFB does not play a role within the Regional System, in terms of satisfying general aviation needs, it was not included in this stratification process.

System Stratification

To stratify Study airports into two levels of contribution, based on their current role in meeting regional transportation and economic needs, information from a geographic information system (GIS) mapping

analysis was used. In addition, information on Study airports collected as part of the RASP's inventory effort was used in this process. To conduct the GIS analysis to contrast and compare Study airports for the service level evaluation factors, a 30-minute service area was used. This type of service area is consistent with FAA guidelines for general aviation service areas as defined by the FAA in the National Plan for Integrated Airport Systems (NPIAS).

Accessibility

The role each System airport plays varies based on its distance from a four-lane highway. GIS mapping was used to determine each airport's proximity to a four-lane highway. In conducting this analysis, it is important to note that portions of Valencia Road, including the segment of Valencia between I-19 and I-10, are classified as a State Highway, thus making the terminal at Tucson International Airport 0.8 miles from the nearest four-lane State highway facility. Further results of this mapping exercise, as shown in **Table 6-1**, produced the following findings:

Table 6-1
ACCESSIBILITY
DISTANCE TO 4-LANE HIGHWAY

Airport	Distance to 4-Lane Highways (Miles)
Tucson International	0.8 miles
Pinal Airpark	2.0 miles
Benson Municipal	3.4 miles
Marana Northwest Regional	5 miles
Ryan Airfield	3.5 miles
La Cholla Airpark	6.5 miles
Sells	55 miles
Ajo Municipal	42 miles

In addition to determining each airport's proximity to a four-lane highway, GIS analysis was also used to identify and then rank the Study airports for the number of square miles within Pima County that the airports' 30-minute service areas encompass. This factor helps to determine how accessible each of the airports is. Results of the mapping for this accessibility factor, are shown in **Table 6-2**, on the following page.

For this factor, the number of square miles served by each Study airport varied based on several factors. Airports in the RASP that are in proximity to the borders of Pima County have a reduced propensity to incorporate large areas of Pima County within their 30-minute drive times. Also, airports that have less developed ground access systems tend to serve a lower percentage of Pima County's geographic area.

Population Served

As with accessibility, this factor was evaluated using GIS mapping/analysis. GIS mapping was used to determine not only the resident population of Pima County within each airport's 30-minute drive time, but also the number of registered aircraft owners that reside within that same 30-minute drive time. Since the focus of the PAG RASP is to evaluate the ability of the Study airports to serve the aviation needs of

Table 6-2
ACCESSIBILITY AREA
COVERED WITHIN THE PAG REGION

Airport	Square Miles Within 30 Minutes
Ryan Airfield	476 square miles
Marana Northwest Regional	358 square miles
Tucson International	350 square miles
Pinal Airpark	235 square miles
Sells	228 square miles
La Cholla Airpark	208 square miles
Ajo Municipal	137 square miles
Benson Municipal	32 square miles

Pima County, the analysis and mapping was limited to Pima County variables. The role that Study airports play in serving population and registered aircraft owners in neighboring counties is addressed in the ADOT State Aviation Needs Study (SANS).

To conduct the GIS mapping analysis, PAG's existing model network was imported into TransCAD, a GIS-based Transportation Demand Model. Subsequently, the network was expanded to include major roads in the vicinity of System airports that are outside of the limits of the existing PAG model. Data related to "free flow speed" was entered into the new links, as was delay for intersections. Travel time contours were developed using functions contained within TransCAD. The summary of the travel time contours produced using this approach are reflected in this section. The model used to produce the drive time contours cannot anticipate excessive intersection delay, nor can the model always anticipate actual free flow speeds.

The mapping analysis for this factor produced the following results, shown in **Table 6-3** and **Table 6-4**:

Table 6-3
POPULATION SERVED IN PAG REGION
COVERAGE OF RESIDENTS

Airport	Population Served
Tucson International	398,122
Ryan Airfield	174,723
La Cholla Airpark	141,581
Marana Northwest Regional	70,809
Pinal Airpark	18,598
Ajo Municipal	2,525
Sells	577
Benson Municipal	264

Some conclusions can be drawn related to the findings of this GIS mapping analysis. Tucson International's location within Pima County makes it most accessible to the County's population. **Exhibit 6-1** presents the results of the GIS mapping analysis for the population factor.

According to information maintained by the FAA on the location of registered aircraft owners in Pima County, Tucson International is also the most convenient airport for registered aircraft owners. La Cholla Airpark, the only privately owned airport in the RASP System, ranks second for its convenience to registered aircraft owners in Pima County.

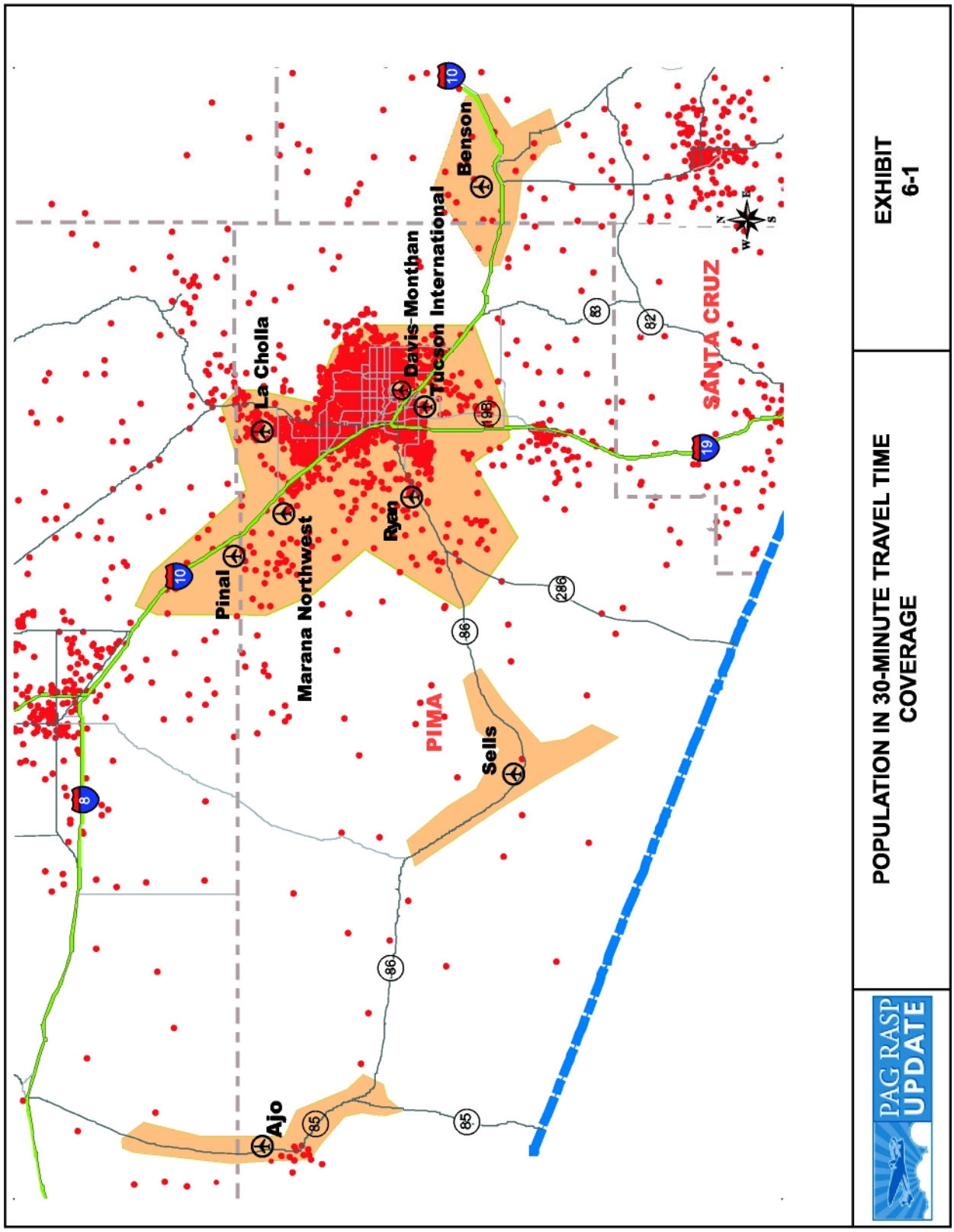


EXHIBIT
6-1
POPULATION IN 30-MINUTE TRAVEL TIME
COVERAGE
PAG RASP
UPDATE
Benson
Davis-Monthan
Tucson International
La Cholla
Pinal
Marana Northwest
Ryan
Sells
Ajo
SANTA CRUZ
PIMA
10
8
19
86
85
88
82
286
198

Table 6-4
POPULATION SERVED IN PAG REGION
REGISTERED AIRCRAFT OWNERS COVERED

Airport	Registered Aircraft Owners Served
Tucson International	328
La Cholla Airpark	285
Ryan Airfield	174
Marana Northwest Regional	105
Pinal Airpark	50
Ajo Municipal	3
Sells	0
Benson Municipal	0

Because of its location in neighboring Cochise County, the ability of Benson Municipal to capture a high portion of either the population or the registered aircraft owners in Pima County is inhibited. Population and registered aircraft owners in Cochise County that are served by this airport are not reflected in this analysis. The same is true for the information reported for Pinal Airpark; population and registered aircraft owners residing in this airport's 30-minute service area that includes Pinal County are not reflected in the results of this analysis. Results of the GIS mapping analysis for registered aircraft owners in Pima County are presented in **Exhibit 6-2**.

Table 6-5
TOTAL EMPLOYMENT FROM MAJOR EMPLOYERS OF 50 OR MORE EMPLOYEES WITHIN PAG SERVICE AREA

Airport	Employment Served
Tucson International	154,381
Ryan Airfield	61,247
La Cholla Airpark	23,284
Marana Northwest Regional	6,222
Pinal Airpark	1,351
Ajo Municipal*	868
Sells*	684
Benson Municipal*	1,424

* Ajo, Sells, and Benson Municipal do not have major employers within a 30-minute drive time; however, they do serve smaller businesses and this number represents total employment within the service areas of these three airports. Total employment for Pima County was estimated at about 397, 400 people in the 2025 RTP.

Businesses Served

For this analysis, determining how Study airports are serving the business needs of Pima County is also important to determining the role each airport is currently playing in meeting the Region's transportation and economic needs. Using each airport's 30-minute service area and GIS mapping, employment reported in each airport's service area, as obtained from current census data, was identified. The GIS results for this factor are summarized in **Table 6-5**.

Exhibit 6-3 presents the findings from the GIS analysis for the employment factor. As shown in this exhibit, employment in Pima County is heavily concentrated in the area of the County where I-10 and I-19 converge. This results in Tucson International and Ryan Airfield being the airports in closest proximity to the majority of the County's business centers.

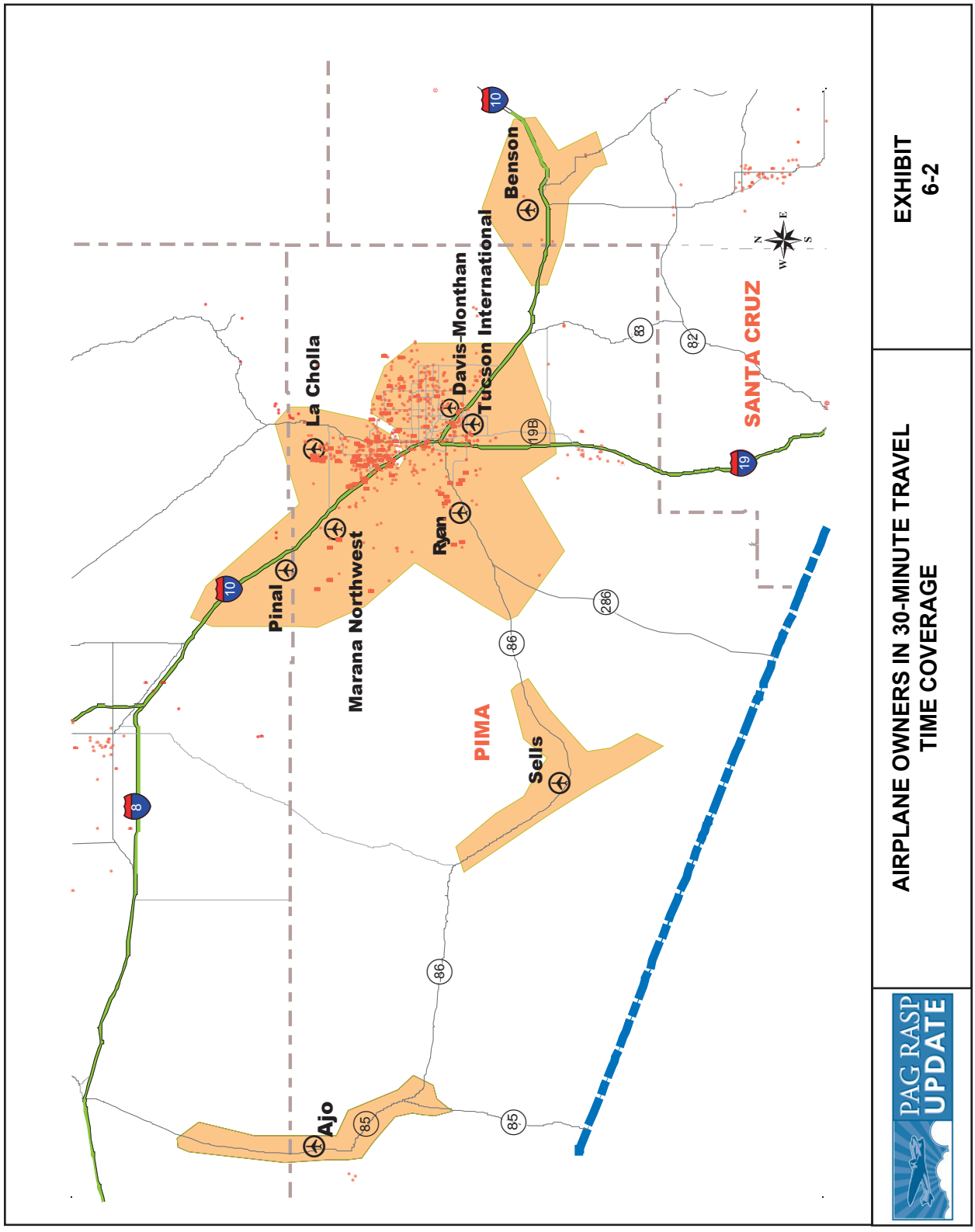
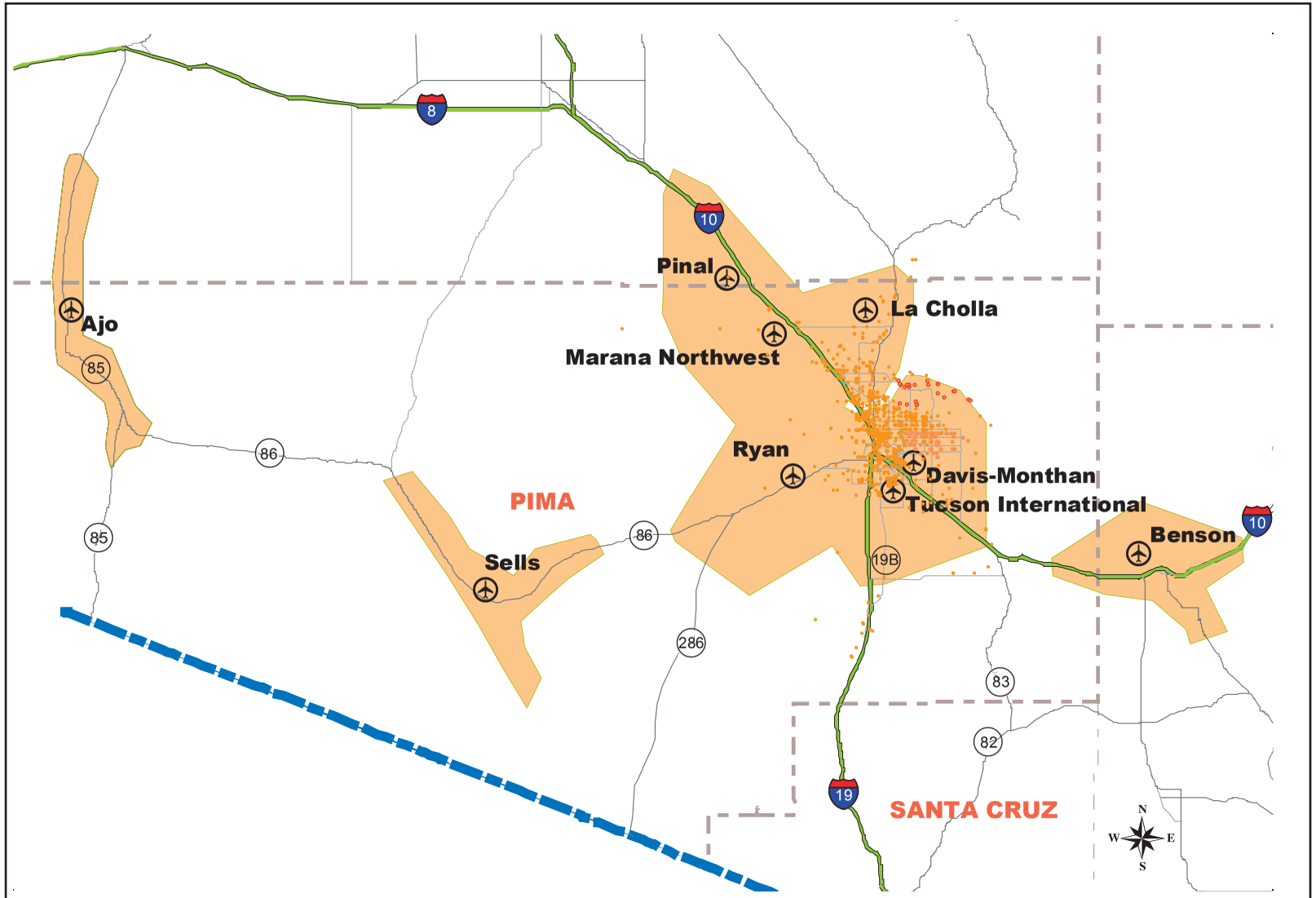


EXHIBIT
6-2
AIRPLANE OWNERS IN 30-MINUTE TRAVEL
TIME COVERAGE
PAG RASP
UPDATE
Benson
Tucson International
Davis-Monthan
La Cholla
Pinal
Marana Northwest
Ryan
Sells
Ajo
SANTA CRUZ
PIMA
10
19
19B
8
88
82
286
86
85



PAG RASP UPDATE

MAJOR EMPLOYERS WITH 50 OR MORE EMPLOYEES WITHIN A 30-MINUTE TRAVEL TIME

EXHIBIT 6-3

Minority Population Served

As part of the RASP analysis, GIS was also used to determine the portion of the Study Area's non-white or minority population served by the System airports. According to the 2000 Census, about 210,260, or 25 percent, of the Pima County population falls into the non-white category. Sixty-eight (68) percent of this population is within a 30-minute drive time of Tucson International Airport. When the 30-minute service areas for all System airports are considered, 92 percent of the County's non-white population is within a 30-minute drive time of a System airport. When the Hispanic population is considered, according to the 2000 Census, the total population in the non-white category increases to 39 percent. Sixty-eight (68) percent of the Hispanic/non-white population of Pima County is within a 30-minute drive time of Tucson International. When all System airports are considered, 93 percent of the Hispanic/non-white population in Pima County is within a 30-minute drive time of at least one of the System airports. System coverage provided to minority populations in Pima County is similar to the coverage provided to all other residents of Pima County.

Table 6-6 presents of a summary of the results from the GIS mapping analysis conducted for the PAG RASP. This information has been discussed in the preceding sections of this chapter and will be used to stratify the airports in the System to reflect their current levels of System contribution and importance.

Ownership

Of all airports being analyzed in the RASP, only La Cholla Airpark is a privately owned facility. The remainder of the System airports are owned and operated by a public entity. The potential drawbacks of private versus public ownership were alluded to earlier in this Chapter. Based on ownership, with the exception of La Cholla Airpark, all other airports in the RASP are considered equal in terms of their perceived System contribution. Even though Sells Airport is publicly owned, it is not included in the NPIAS. Therefore, its rating for this factor is lower than the rating for other public airports in the System.

Surrounding Development

Airports that serve developed versus undeveloped areas typically play more important system roles. An airport is located in a developed area generally indicates there are multiple users who most likely use, or are dependent on, the facility. Further, when an airport is in an area characterized by business and commercial development, this dependence typically increases and the airport's role in the system is elevated.

Land use surrounding airports included in the PAG RASP varies considerably. To help stratify System airports in terms of their relative importance to the Regional Aviation System, land use around System airports was categorized as being:

- Commercial/Industrial/Business
- Mixed Business/Residential
- Rural/Agricultural
- Rural/Undeveloped

Table 6-6
GIS SUMMARY - FINDINGS OF VARIABLES
WITHIN THE PAG TRANSPORTATION PLANNING AREA

Variable	Tucson International	Ryan	Marana Northwest	La Cholla	Pinal	Sells	Ajo	Davis-Monthan AFB	Benson	Total w/o Davis-Monthan AFB	Total All Airports	Total in PAG Region
Service Area												
Within PAG Only	350	476	358	208	235	228	137	262	32	1,797	1,884	9,392
as a % of Total	3.8%	5.2%	3.9%	2.3%	2.6%	2.5%	1.5%	2.9%	0.3%	19.5%	20.5%	
Population												
Within PAG Only	398,122	174,723	70,809	141,581	18,598	577	2,528	450,210	264	603,239	747,622	843,724
as a % of Total	47.2%	20.7%	8.4%	16.8%	2.2%	0.1%	0.3%	53.4%	0.0%	71.5%	88.6%	
Major Employment												
Within PAG Only	154,381	61,247	6,222	23,284	1,351	684	868	160,664	1,424	180,357	200,422	220,464
as a % of Total	70.0%	27.8%	2.8%	10.6%	0.6%	0.3%	0.4%	72.9%	0.6%	81.8%	90.9%	
Airplane Ownership												
Within PAG Only	328	174	105	285	50	0	3	451	0	761	930	997
as a % of Total	32.9%	17.5%	10.5%	28.6%	5.0%	0.0%	0.3%	45.2%	0.0%	76.3%	93.3%	

* Major Employment is the total employees in business with 50 or more employees located within the PAG region.

For this analysis, it was assumed that airports characterized by some type of business/commercial development play the most significant role in the System, as measured by this particular factor. Conversely, airports in rural/undeveloped areas are assumed to be less essential to meeting the Region's transportation and economic needs. For the surrounding land use factor, System airports were ranked in **Table 6-7** as follows:

Table 6-7
SURROUNDING DEVELOPMENT
IMMEDIATELY ADJACENT LAND USE CHARACTERISTICS

Airport	Surrounding Development
Tucson International	Commercial/Industrial/Business
La Cholla Airpark	Mixed Business/Residential
Marana Northwest Regional	Rural/Agricultural
Pinal Airpark	Rural/Agricultural
Ryan Airfield	Undeveloped/Rural
Benson Municipal	Undeveloped/Rural
Sells	Undeveloped/Rural
Ajo Municipal	Undeveloped/Rural

Airport Facilities

As would be expected, as the level of facilities provided by airports in any given system increases, typically the usage of that facility and its corresponding role in that airport system does also. For airports in any system, the facilities most important to determining an airport's usage include its runway length and approach type. For this analysis, the presence, or lack thereof, of a parallel taxiway system was also considered. Using these facilities, as derived from this Study's inventory analysis, System airports were reviewed. Following this review, the System airports were ranked as follows in **Table 6-8** for the ability of their existing facilities to contribute to their importance to the Regional Aviation System:

Table 6-8
FACILITIES PROVIDED
MAJOR FACILITIES AT SYSTEM AIRPORTS

	Facilities		
Airport	Runway Length	Approach	Taxiway
Tucson International	10,996 ft.	Precision	Parallel
Ryan Airfield	5,500 ft.	Precision	Parallel
Marana Northwest Regional	6,901 ft.	Visual	Parallel
Pinal Airpark	6,850 ft.	Visual	Parallel
La Cholla Airpark	4,500 ft.	Visual	Parallel
Sells	5,830 ft.	Visual	None
Benson Municipal	4,000 ft.	Visual	None
Ajo Municipal	3,800 ft.	Visual	None

Airport Services

In addition to facilities, the services an airport provides also contribute to its utilization and to its role in an airport system. For this factor, using data from the RASP inventory effort, each System airport was reviewed to identify the presence or absence of the specific services as identified in **Table 6-9**.

Table 6-9
SERVICES AVAILABLE AT SYSTEM AIRPORTS
AS OF JULY 2001

	Services						
Airport	AvGas	Jet Fuel	Aircraft Repairs	Avionics	Training	Rentals	Charters
Tucson International	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Marana Northwest	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ryan Airfield	Yes	No	Yes	Yes	Yes	Yes	No
Pinal Airpark	Yes	Yes	Yes	No	No	No	No
La Cholla	Yes	No	Yes	No	No	No	No
Benson Municipal	No	No	No	No	No	No	No
Ajo Municipal	No	No	Yes	No	No	No	No
Sells	No	No	No	No	No	No	No

For this analysis, training referred only to civilian aircraft training, and not to military training that may be accommodated by Study airports.

Ranking and Stratification of System Airports

As discussed in this chapter of the RASP, airports in the System contribute at varying levels toward meeting the Region's air transportation and economic needs. As a result of these different levels of contribution, the importance of each airport to the System also varies. This chapter has identified and discussed those factors that determine each airport's contribution to the System and, thus, its level of importance. For each airport, the preceding sections of this chapter have discussed how System airports are currently characterized by the factors that help to establish its System role. Further, airports in the System have been ranked comparatively to one another as to how they are characterized by each of these factors. **Table 6-10** summarizes the results of this process.

For each of the factors analyzed in this chapter, System airports were ranked from high to low in terms of ability to exhibit these characteristics. Based on these rankings, airports were then scored, with 8 representing the highest score and 1 the lowest for each of the factors. Each airport was evaluated and a score was awarded in each of the categories shown in Table 6-10. Scores were then summed, and the airports in the System ranked from high to low for their current contribution in the Regional Aviation System.

As shown in Table 6-10, Tucson International Airport was ranked as the most important airport for meeting the general aviation needs of the Region, and Ajo Municipal was ranked as the airport with the lowest importance. The scorings and rankings shown in Table 6-10 do not necessarily imply that any particular airport is, or is not, needed as part of the System. The rankings are used primarily to help establish the core or the essential airport System for the Region.

Based on the analysis completed in this phase of the RASP, System airports have been segregated into two levels, Level I and Level II. Level I airports are those airports that are considered most essential to meeting the Region's transportation and economic needs, while Level II airports are currently playing more of a supporting role in the System.

Table 6-10
PAG RASP SYSTEM STRATIFICATION

Airport	4-Lane Access	Area Covered	Population Served	Aircraft Owners Served	Employment Served	Ownership	Surrounding Development	Facilities	Services	Total Score/ Ranking
Ajo Municipal	1	2	3	3	1	8	2	1	3	24 (7)
Benson Municipal	7	1	1	1	1	8	3	3	2	27 (6)
La Cholla Airpark	3	3	6	7	6	1	7	4	4	41 (5)
Marana Northwest	5	7	5	5	5	8	6	6	7	54 (3)
Pinal Airpark	8	5	4	4	4	8	5	6	5	48 (4)
Ryan Airfield	4	8	7	6	7	8	4	7	6	57 (2)
Tucson International	8	6	8	8	8	8	8	8	8	70 (1)
Sells	1	4	2	1	1	4	1	3	1	18 (8)

Current roles for System airports are as follows:

Level I	Level II
Tucson International	La Cholla Airpark
Ryan Airfield	Benson Municipal
Marana Northwest Regional	Sells
Pinal Airpark	Ajo Municipal

It is important to note that, as the Regional Aviation System is evaluated and analyzed in subsequent portions of the RASP, it is possible that reassignment of airports between the two levels could occur. Based on the evaluation of the System, voids or deficiencies could be identified that would result in the need to elevate a Level II airport to Level I status. Conversely, if the System adequacy analysis reveals that there are surpluses, duplications, or overlaps in the existing System, based on the initial role assignments, a Level I airport could be reclassified as a Level II facility.

Facility and Service Objectives

With the System stratified into two levels of contribution or importance, the next step in the RASP was to identify facility and service objectives for airports in each of the two System levels. These facility and service objectives are guides for a variety and range of developments that ideally should be in place at each airport to enable that airport to fulfill its role in the System.

Generally speaking, Level I airports within the System should be able to accommodate a full range of general aviation aircraft, including the most demanding business/corporate jets. While some limited business jet use may occur at Level II airports, these airports should primarily be capable of accommodating single- and twin-engine piston aircraft.

Facility and service objectives for Level I and Level II airports are provided in **Table 6-11** and **Table 6-12**. It is important to note that the airports assigned to Level I or Level II do not necessarily currently have or provide the facilities and services identified in Tables 6-11 and 6-12. Assuming that the airports remain in their current levels, following the evaluation of the Regional Aviation System, these facilities and services should be viewed as objectives that System airports should strive to meet or provide as they plan their future development.

In the next phase of the RASP, which includes an evaluation of the existing System to identify its adequacies, deficiencies, and surpluses, these facility and service objectives will be one of the "measuring sticks" that will be used to evaluate the adequacy of the Regional Aviation System.

Table 6-11
FACILITY AND SERVICE OBJECTIVES
LEVEL I AIRPORTS

Airside Facilities	LEVEL I AIRPORTS
Aircraft Design Group	C category aircraft
Runway Length	5,000 feet or greater
Runway Width	100 feet
Taxiway	Full Parallel
Approach	Published
Lighting	HIRL or MIRL with MITL
Visual Aids	Rotating Beacon; Lighted Wind Cone/Segmented Circle; REILS; VGSI (VASIs/PAPIs)
Weather	ASOS or AWOS
Landside Facilities	
Hangars Based	75% of based fleet
Apron	25% of based; 50% of transient
Terminal/Administration	1,500 to 2,000 square feet
Operations/Maintenance Hangar	Existing Maintenance Hangar
Auto Parking	100% of the number of based aircraft
Services	
FBO	Full service
Maintenance	Full service/Maintenance Hangar
Fuel	Jet A and 100LL
Terminal/Pilot	Phone, Restrooms, Flight Planning/Lounge
Ground Transportation Services	On-site rental car
Security	Fencing, Controlled Access, Night Guard, Terminal/Hangar Security Lighting
Utilities	All
Food	Full Service

Note: Level I – These airports should be able to accommodate a full range of business/corporate general aviation aircraft.

Table 6-12
FACILITY AND SERVICE OBJECTIVES
LEVEL II AIRPORTS

Airside Facilities	LEVEL II AIRPORTS
Aircraft Design Group	B and A category aircraft
Runway Length	3,500 feet
Runway Width	60 feet
Taxiway	Turnaround
Approach	Visual
Lighting	MIRL or LIRL and MITL or reflectors
Visual Aids	Lighted Wind Cone/Segmented Circle/Beacon
Weather	Not an objective for Level II
Landside Facilities	
Hangars Based	50% of based fleet
Apron	50% of based; 25% of transient
Terminal/Administration	650 to 800 square feet
Operations/Maintenance Hangar	Not an objective for Level II
Auto Parking	75% of the number of based aircraft
Services	
FBO	Limited Service
Maintenance	Not an objective for Level II
Fuel	100LL
Terminal/Pilot	Phone and Restrooms
Ground Transportation Services	Not an objective for Level II
Security	Perimeter Fencing
Utilities	All
Food	Vending

Note: Level II – These airports should be capable of accommodating all single-engine and small twin-engine general aviation aircraft.